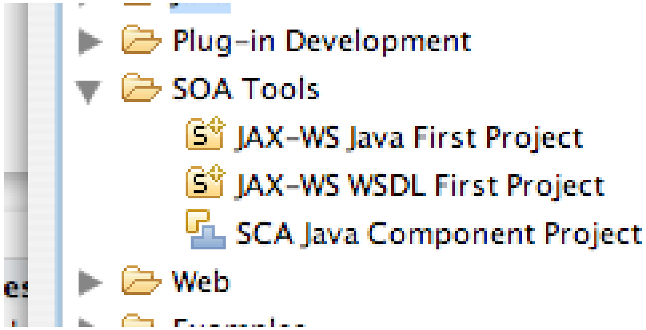
STP Components - Using and Extending the SOA Tools Platform Project

Oisín Hurley

Content

- Project Update
- New extension points
- New and Noteworthy
- Draft Roadmap

Project Update

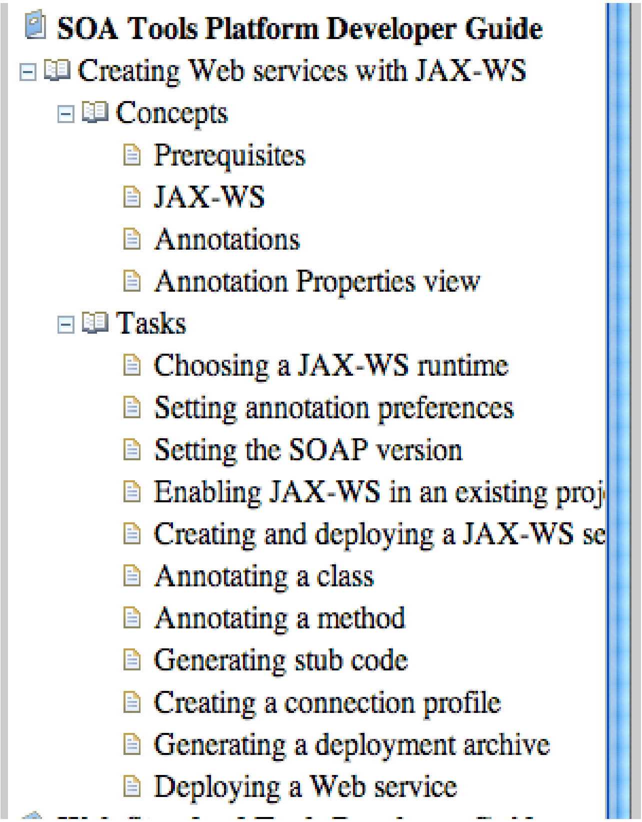


- Plug-in Development
- SOA Tools
  - JAX-WS Java First Project
  - JAX-WS WSDL First Project
  - SCA Java Component Project
- Web

- Europa Release
  - Build/release devoirs
- Stabilization of JAX-WS code-first service development
- WSDL-first JAX-WS service development
- SCA Java Service development

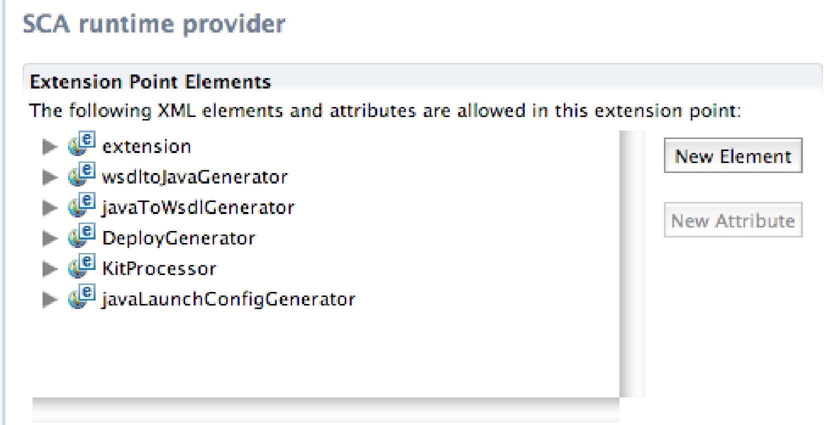
Project Update

- XML editor SCDL support
  - Just a very simple schema-enforcing editor
- Many improvements and upgrades to BPMN modeler
- Online Help
- Many bug fixes
- Building technical documentation, tutorials



SOA Tools Platform Developer Guide
- Creating Web services with JAX-WS
  - Concepts
    - Prerequisites
    - JAX-WS
    - Annotations
    - Annotation Properties view
  - Tasks
    - Choosing a JAX-WS runtime
    - Setting annotation preferences
    - Setting the SOAP version
    - Enabling JAX-WS in an existing proj
    - Creating and deploying a JAX-WS se
    - Annotating a class
    - Annotating a method
    - Generating stub code
    - Creating a connection profile
    - Generating a deployment archive
    - Deploying a Web service

New Extension Points

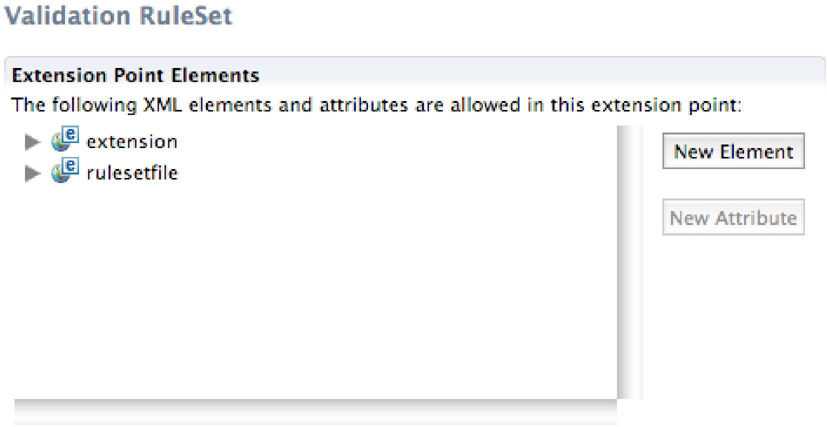


SCA runtime provider

Extension Point Elements

The following XML elements and attributes are allowed in this extension point:

- extension
- wsdltoJavaGenerator
- javaToWsdlGenerator
- DeployGenerator
- KitProcessor
- javaLaunchConfigGenerator



Validation RuleSet

Extension Point Elements

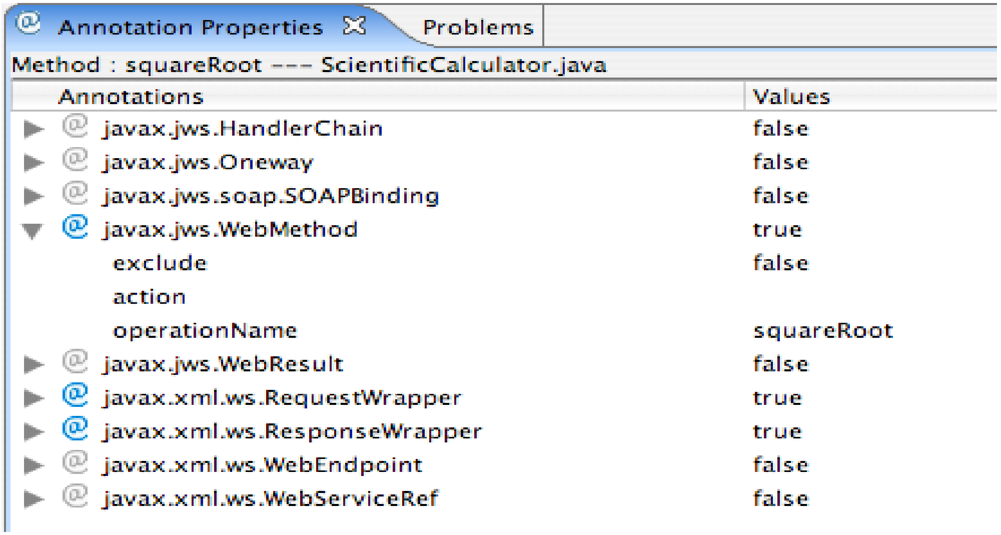
The following XML elements and attributes are allowed in this extension point:

- extension
- rulesetfile

- Java Annotation View Helper
- Java Annotation Validator
- JAX-WS Runtime Provider
- SC Java Runtime Provider
- BPMN Diagram Annotation Decorator

Annotation Helper

- Java 5 Annotation Helper Extension Point
    - Add an extension here if you wish to drive the annotations view
- Used for JAX-WS and SCA Java service creation
    - Useful for other approaches too, e.g. REST markup like JSR 311



Method : squareRoot --- ScientificCalculator.java

Annotations	Values
javax.jws.HandlerChain	false
javax.jws.Oneway	false
javax.jws.soap.SOAPBinding	false
javax.jws.WebMethod	true
exclude	false
action	
operationName	squareRoot
javax.jws.WebResult	false
javax.xml.ws.RequestWrapper	true
javax.xml.ws.ResponseWrapper	true
javax.xml.ws.WebEndpoint	false
javax.xml.ws.WebServiceRef	false

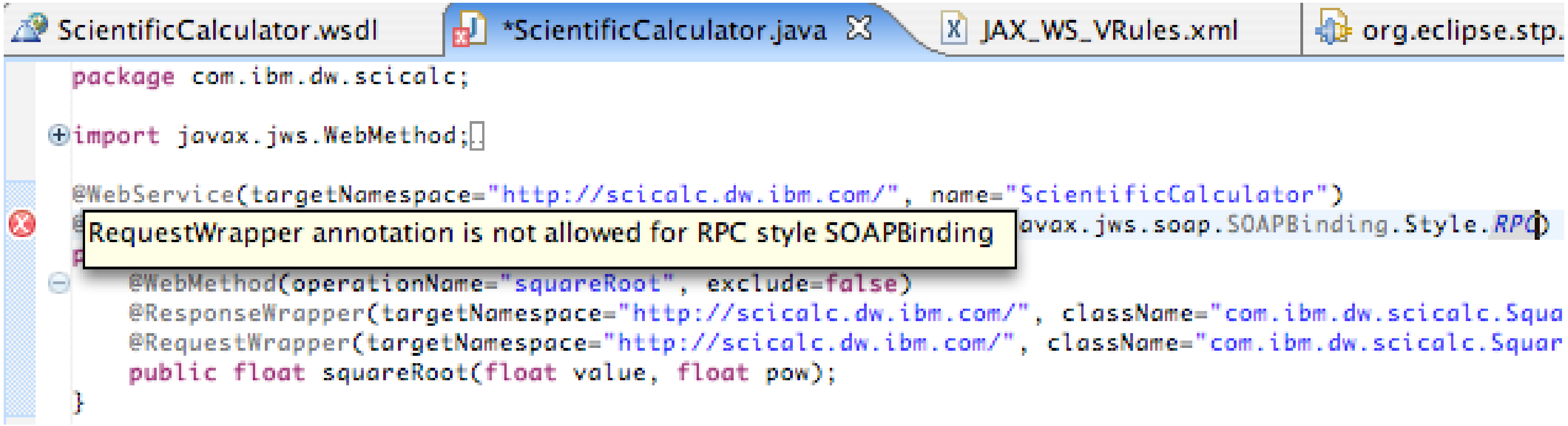
New Extension Points

- Annotation Validation
  - Because some annotations just don’t get on
  - Governed by XML-described rules

```
<rule id="jaxws_rule_soapbindwrapper">
  <description>
Verify the relation between SoapBinding and RequestWrapper annotations
  </description>

  <context>/Class/SOAPBinding</context>
  <assertfalse>
    <errormsg>RequestWrapper annotation is not allowed for RPC style SOAPBinding</errormsg>
   <expression>
       /Class/SOAPBinding/@style="javax.jws.soap.SOAPBinding.Style.RPC"
       and count(/Class/Method/RequestWrapper)>0

    </expression>

  </assertfalse>

</rule>
```

Validation

- Validation rules drive markers in the source view

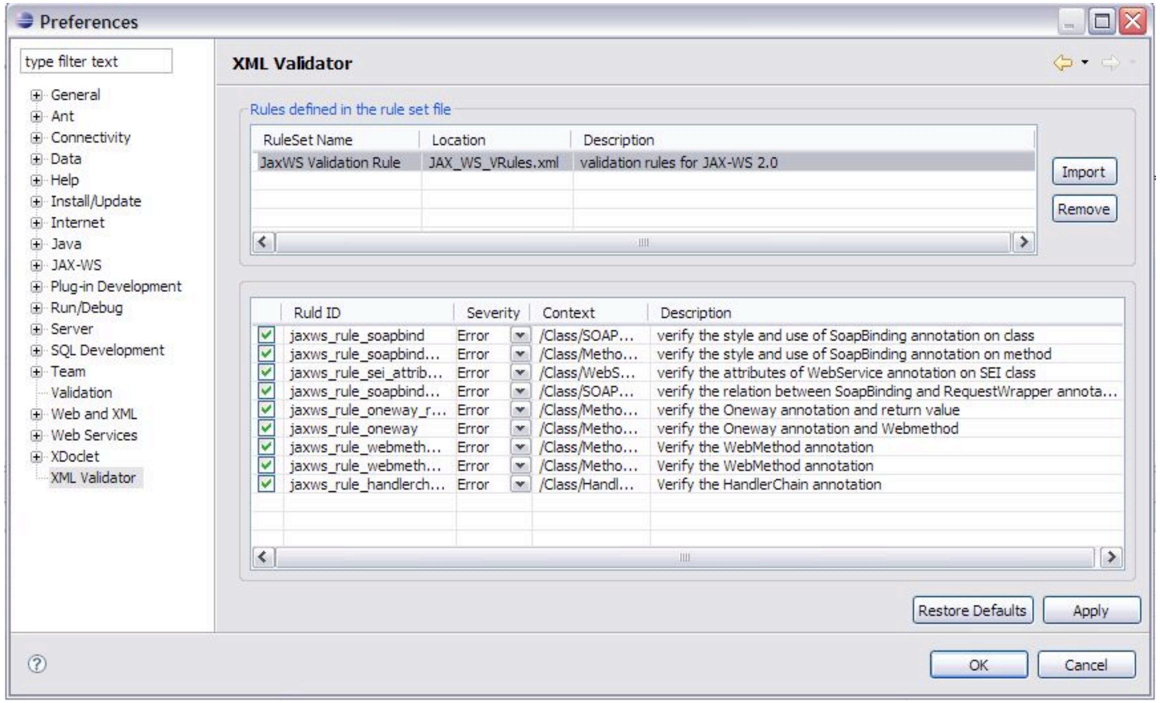


```
package com.ibm.dw.scicalc;

import javax.jws.WebMethod;

@WebService(targetNamespace="http://scicalc.dw.ibm.com/", name="ScientificCalculator")
@                                                                      avax.jws.soap.SOAPBinding.Style.RPC)
p
    @WebMethod(operationName="squareRoot", exclude=false)
    @ResponseWrapper(targetNamespace="http://scicalc.dw.ibm.com/", className="com.ibm.dw.scicalc.Squa
    @RequestWrapper(targetNamespace="http://scicalc.dw.ibm.com/", className="com.ibm.dw.scicalc.Squar
    public float squareRoot(float value, float pow);
}
```

RequestWrapper annotation is not allowed for RPC style SOAPBinding

Validation

- Multiple rule sets may be configured and viewed in prefs



XML Validator

Rules defined in the rule set file

RuleSet Name	Location	Description
JaxWS Validation Rule	JAX_WS_VRules.xml	validation rules for JAX-WS 2.0

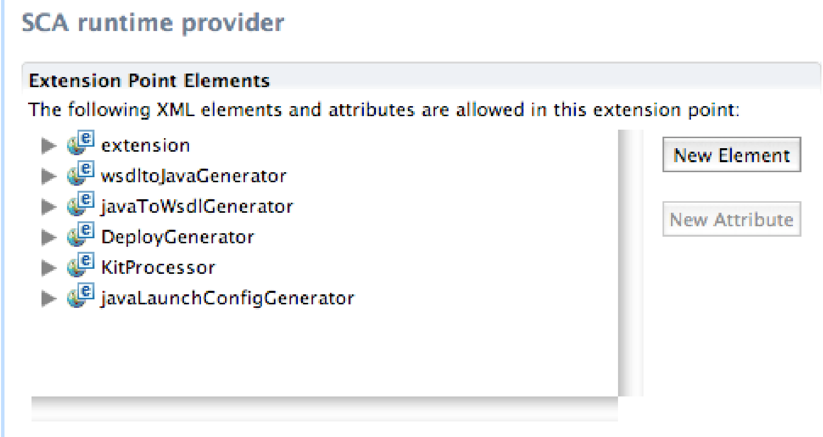
	Ruld ID	Severity	Context	Description
☑	jaxws_rule_soapbind	Error	/Class/SOAP...	verify the style and use of SoapBinding annotation on class
☑	jaxws_rule_soapbind...	Error	/Class/Metho...	verify the style and use of SoapBinding annotation on method
☑	jaxws_rule_sei_attrib...	Error	/Class/WebS...	verify the attributes of WebService annotation on SEI class
☑	jaxws_rule_soapbind...	Error	/Class/SOAP...	verify the relation between SoapBinding and RequestWrapper annota...
☑	jaxws_rule_oneway_r...	Error	/Class/Metho...	verify the Oneway annotation and return value
☑	jaxws_rule_oneway	Error	/Class/Metho...	verify the Oneway annotation and Webmethod
☑	jaxws_rule_webmeth...	Error	/Class/Metho...	Verify the WebMethod annotation
☑	jaxws_rule_webmeth...	Error	/Class/Metho...	Verify the WebMethod annotation
☑	jaxws_rule_handlerch...	Error	/Class/Handl...	Verify the HandlerChain annotation

Validation

- Add a rule set to your plugin by extending `org.eclipse.stp.sc.xmlvalidator.ruleset`
- Adding an extension here informs developers of problems before it becomes a debugging issue
- Develop rulesets if you have your own annotations or if your developers are using multiple annotation-driven approaches
- http://www.eclipse.org/stp/sc/RuleBasedXMLValidator.doc
- http://www.eclipse.org/stp/sc/RuleBasedAnnotationValidator.doc

Runtime Providers

- SCA and JAX-WS Runtimes are pluggable
  - Right now we test against Apache Tuscany and Apache CXF
  - Use these extension points to switch to RI, or others



SCA runtime provider

Extension Point Elements

The following XML elements and attributes are allowed in this extension point:

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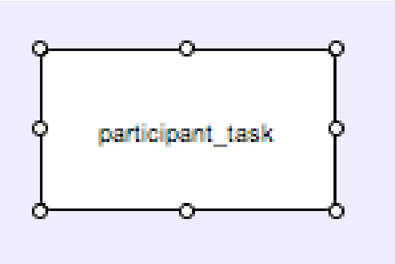
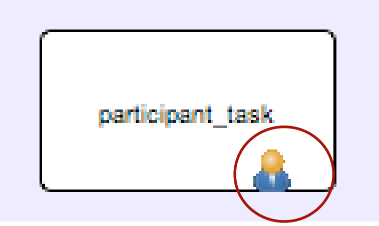
- javaToWsdlGenerator
- DeployGenerator
- KitProcessor
- javaLaunchConfigGenerator

BPMN Diagram Annotation Decorator

- Updates the BPMN diagram with decorations on the nodes



becomes



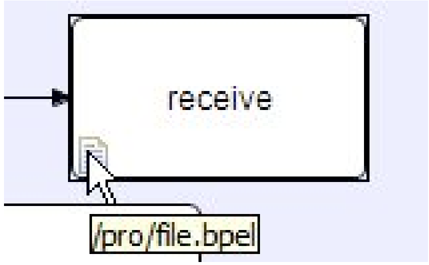
- Covered in online tutorial at

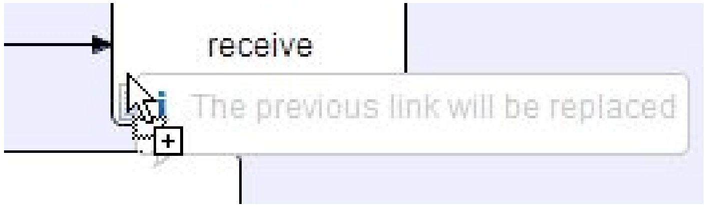
http://wiki.eclipse.org/index.php/STP_BPMN_Presentation_Hands_on_tutorial

Drag and drop

- Modeler extension allows custom annotations to be dragged onto the domain model

http://wiki.eclipse.org/index.php/Reusing_the_modeler





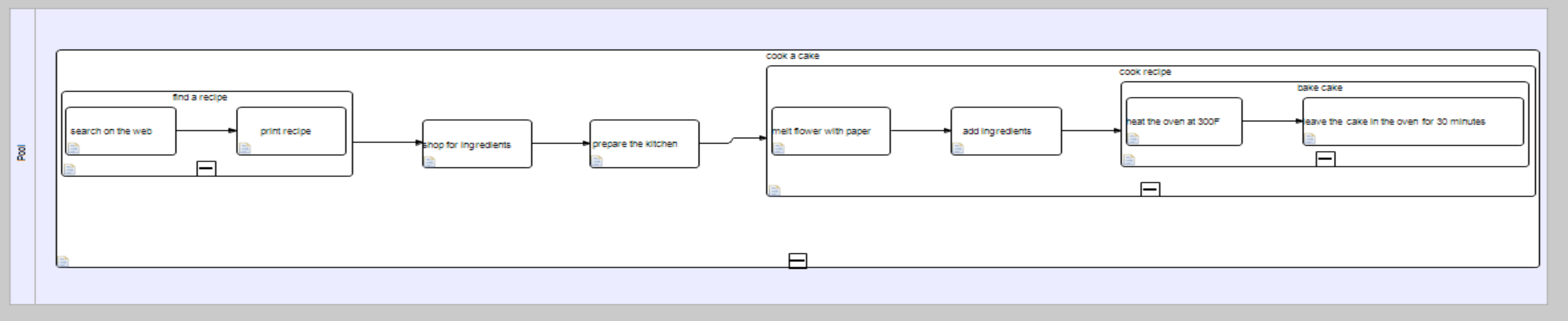
On the plan

- SCA 1.0
  - Updates to core model as necessary
  - Update SCDL vocabulary editor
  - Visual component construction metaphor
- Framework APIs
  - Full documentation, review and finalization
- Europa delivery criteria

BPMN Modeler

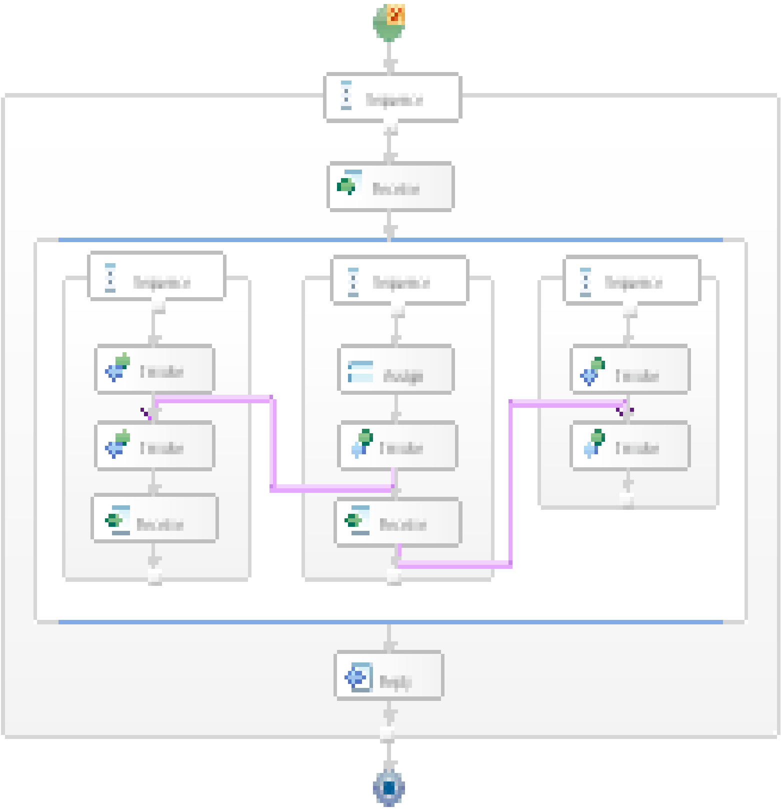
- More stabilization code
- BPMN Factory
  - Generates BPMN artifacts and diagrams
  - Example of generating BPMN pool from BPEL program at

    http://wiki.eclipse.org/index.php/STP_BPMN_Presentation_%28Part_2%29

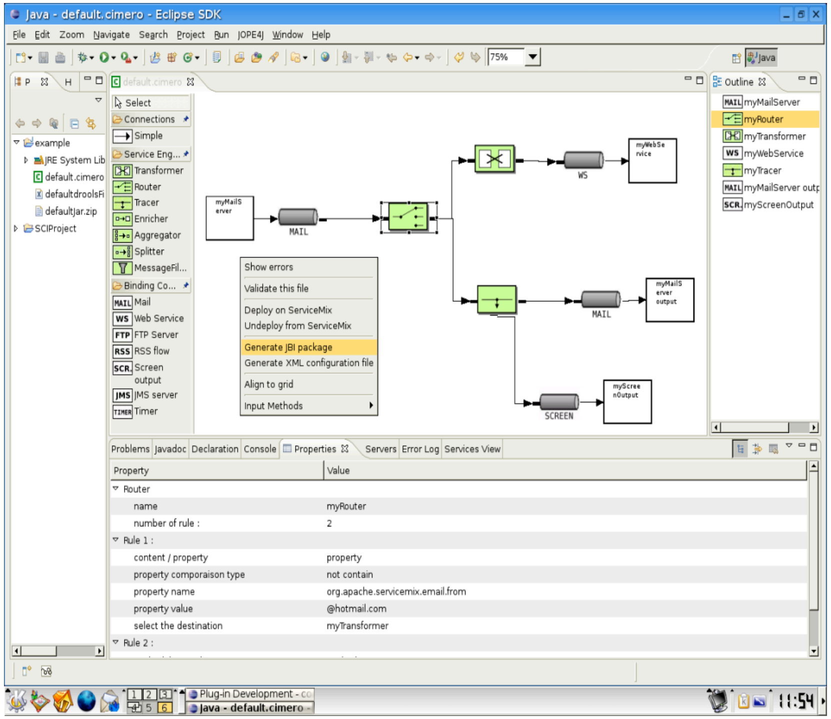


New things

- BPEL editing and deployment
  - Using the BPEL designer from Technology Project
  - Integration with B2J
  - Integration with OSS BPEL runtimes



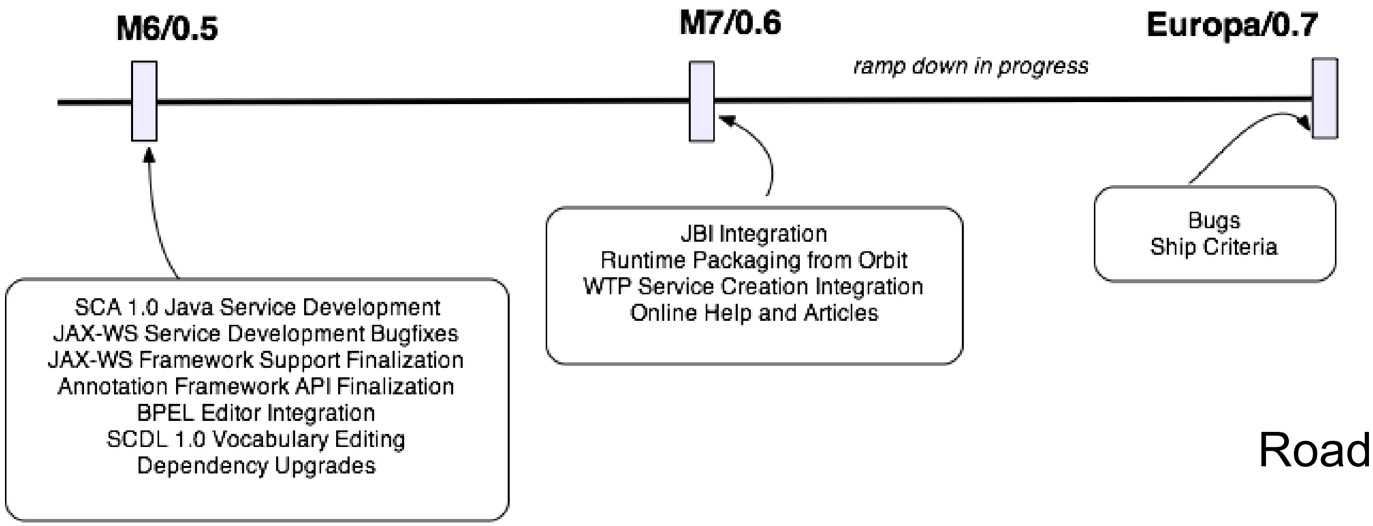
New Things



Property	Value
Router	
name	myRouter
number of rule :	2
Rule 1 :	
content / property	property
property comporaison type	not contain
property name	org.apache.servicemix.email.from
property value	@hotmail.com
select the destination	myTransformer
Rule 2 :	

- Java Business Integration
- Looking at integrating some existing OSS offerings in this space
- Enhancements to STP, extending core model to represent JBI constructs
- Development of a single graphical metaphor for component assembly

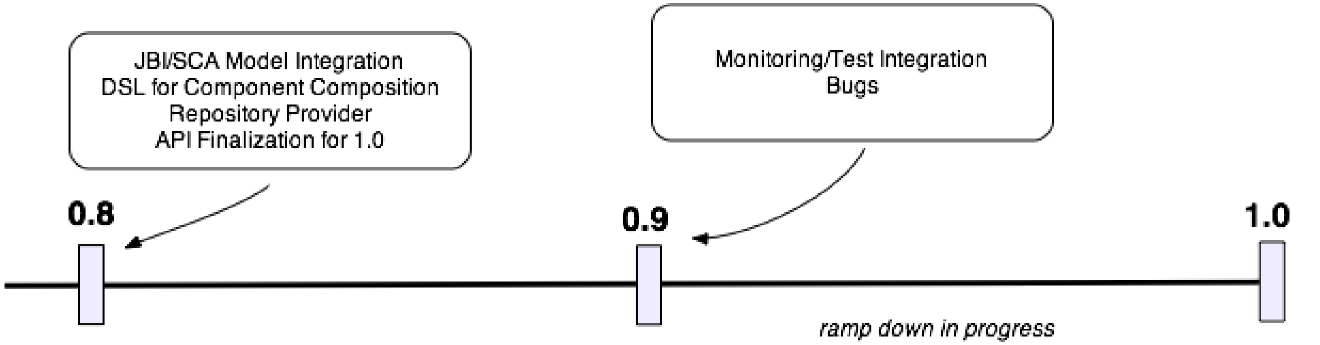
Roadmap *Draft*



SCA 1.0 Java Service Development
JAX-WS Service Development Bugfixes
JAX-WS Framework Support Finalization
Annotation Framework API Finalization
BPEL Editor Integration
SCDL 1.0 Vocabulary Editing
Dependency Upgrades

JBI Integration
Runtime Packaging from Orbit
WTP Service Creation Integration
Online Help and Articles

Bugs
Ship Criteria



JBI/SCA Model Integration
DSL for Component Composition
Repository Provider
API Finalization for 1.0

Monitoring/Test Integration
Bugs

EclipseWorld

The usual appeal

We are looking for help and expertise in the following nice-to-have areas!

Code generation from BPMN

Applying the Debug Framework to BPEL

Using CDT to support SCA 1.0 for C++

Using PDT to support SCA 1.0 for PHP

Testing and monitoring

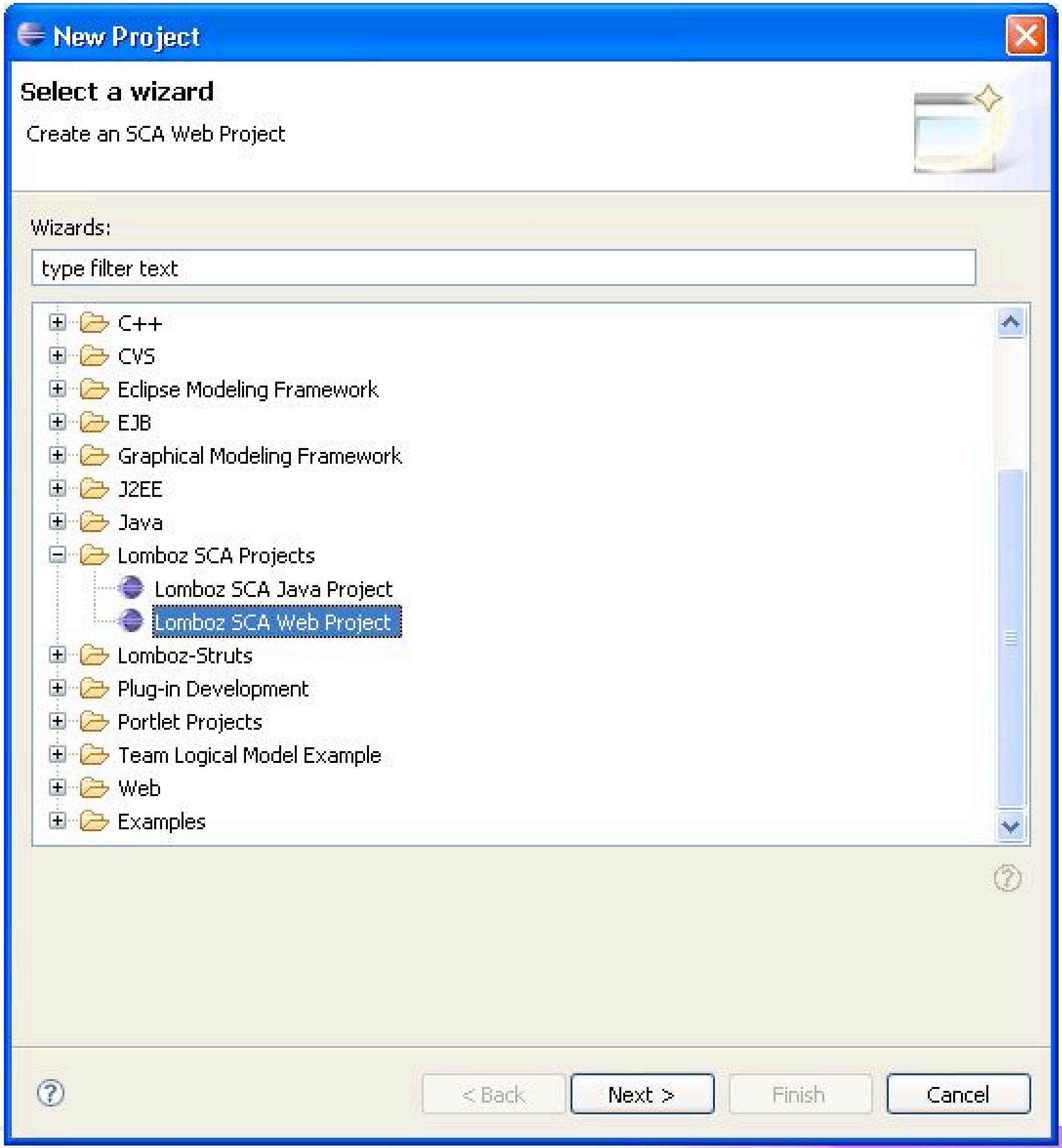
Build system construction and export

Apply to stp-dev@eclipse.org now!

Spotlight

- Lomboz
  - “Open source enterprise development tool covering Java web development, portals and SOA”
  - ObjectWeb’s biggest download - over 2 million in two years
  - Lomboz uses WTP, STP and other Eclipse technologies

SCA Web Project Wizard



New Project

Select a wizard

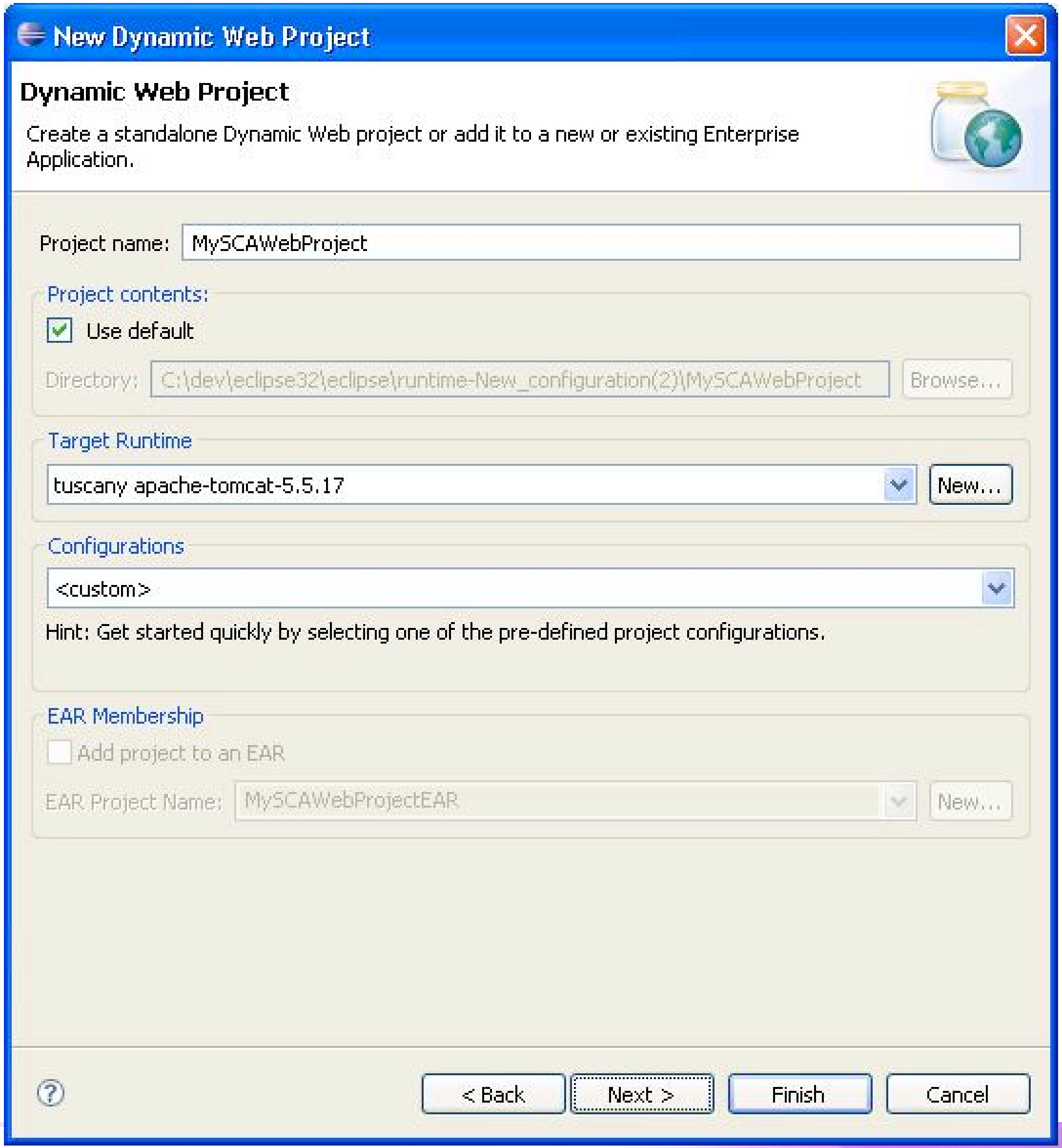
Create an SCA Web Project

Wizards:

type filter text

- C++
- CVS
- Eclipse Modeling Framework
- EJB
- Graphical Modeling Framework
- J2EE
- Java
- Lomboz SCA Projects
  - Lomboz SCA Java Project
  - Lomboz SCA Web Project
- Lomboz-Struts
- Plug-in Development
- Portlet Projects
- Team Logical Model Example
- Web
- Examples

SCA Web Project Wizard



New Dynamic Web Project

Dynamic Web Project

Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application.

Project name: MySCAWebProject

Project contents:

☑ Use default

Directory: C:\dev\eclipse32\eclipse\runtime-New_configuration(2)\MySCAWebProject

Target Runtime

tuscany apache-tomcat-5.5.17

Configurations

<custom>

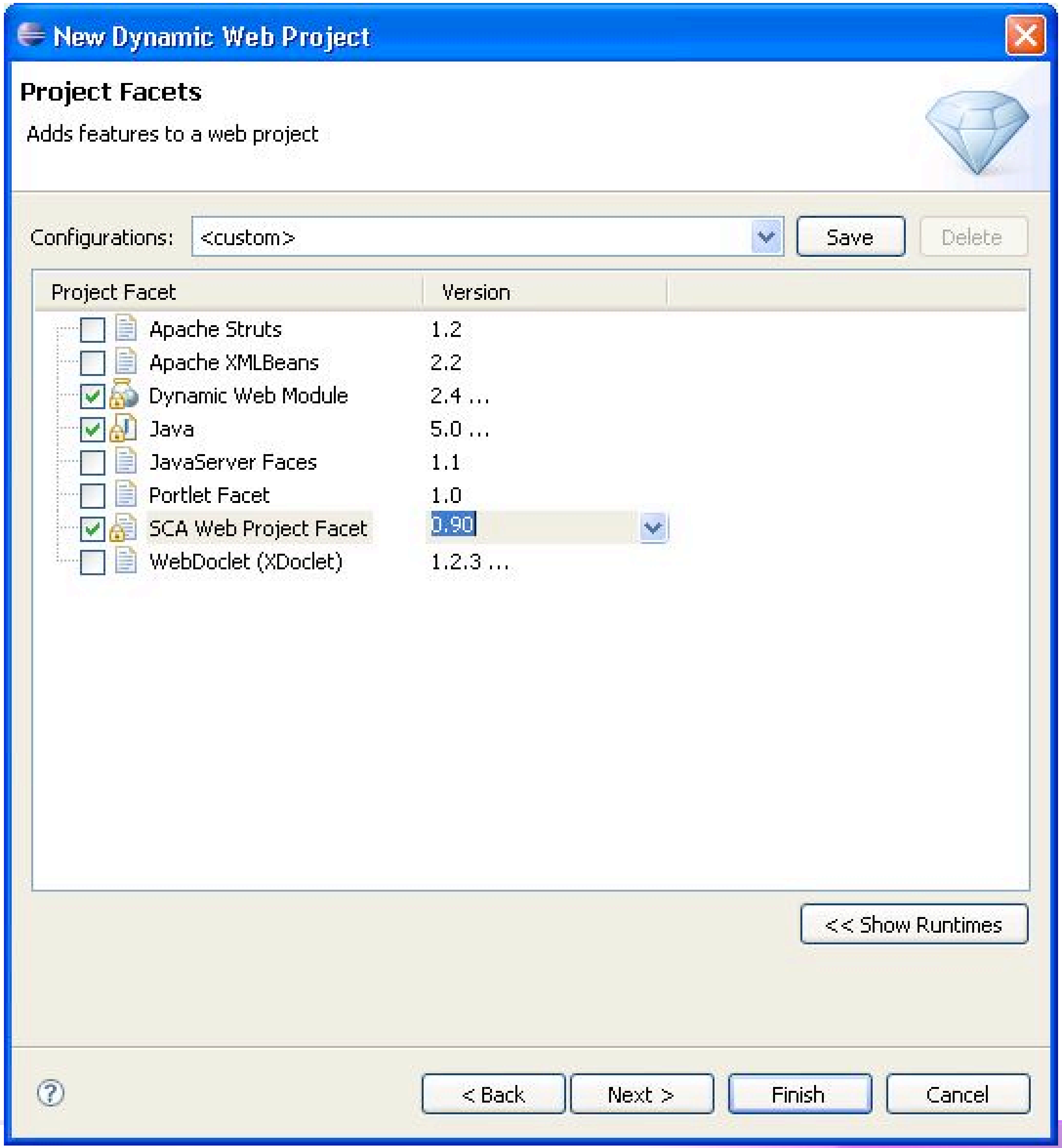
Hint: Get started quickly by selecting one of the pre-defined project configurations.

EAR Membership

☐ Add project to an EAR

EAR Project Name: MySCAWebProjectEAR

SCA Web Project Wizard



New Dynamic Web Project

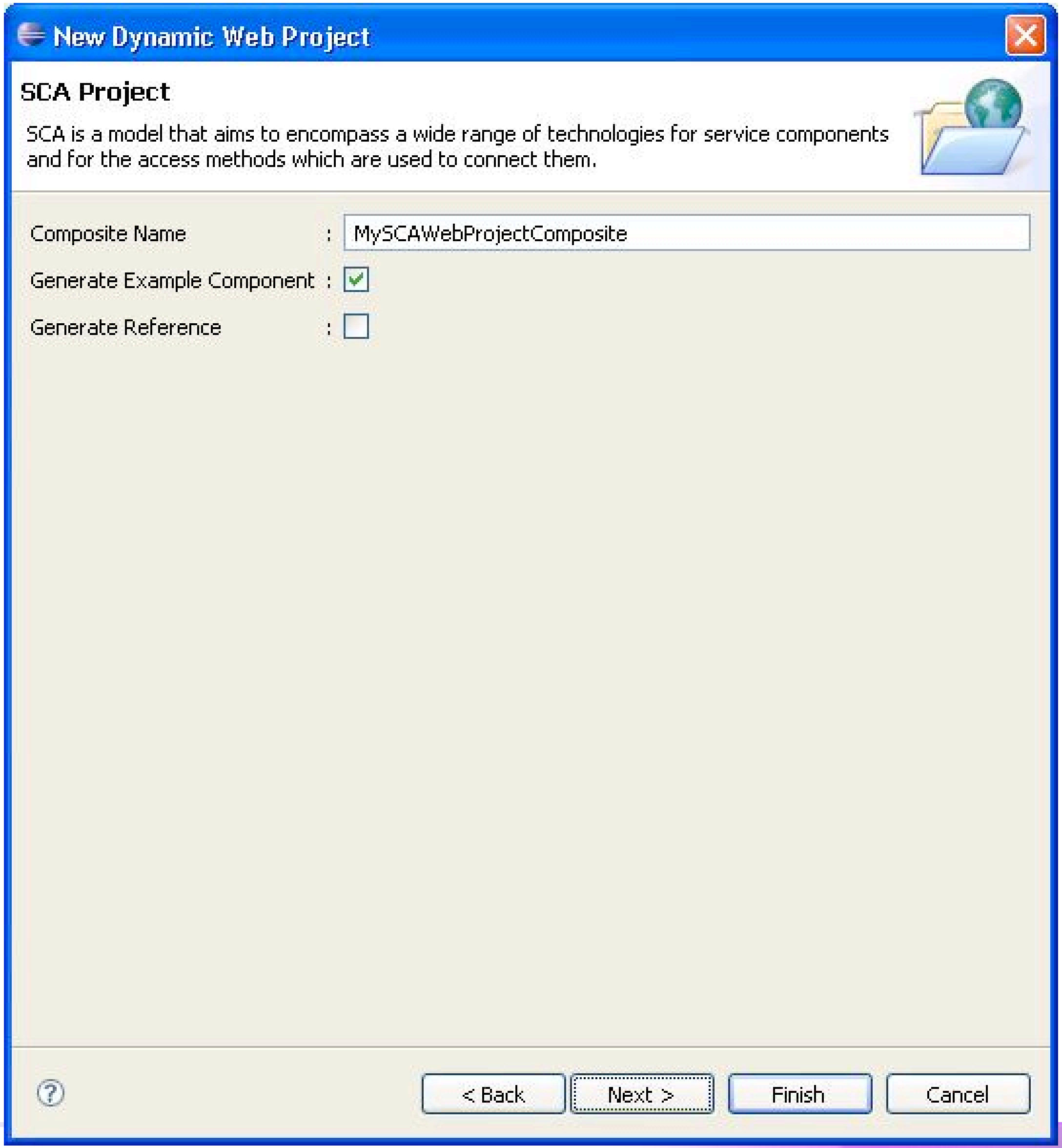
Project Facets

Adds features to a web project

Configurations: <custom>

Project Facet	Version
□ Apache Struts	1.2
□ Apache XMLBeans	2.2
☑ Dynamic Web Module	2.4 ...
☑ Java	5.0 ...
□ JavaServer Faces	1.1
□ Portlet Facet	1.0
☑ SCA Web Project Facet	0.90
□ WebDoclet (XDoclet)	1.2.3 ...

SCA Web Project Wizard



New Dynamic Web Project

SCA Project

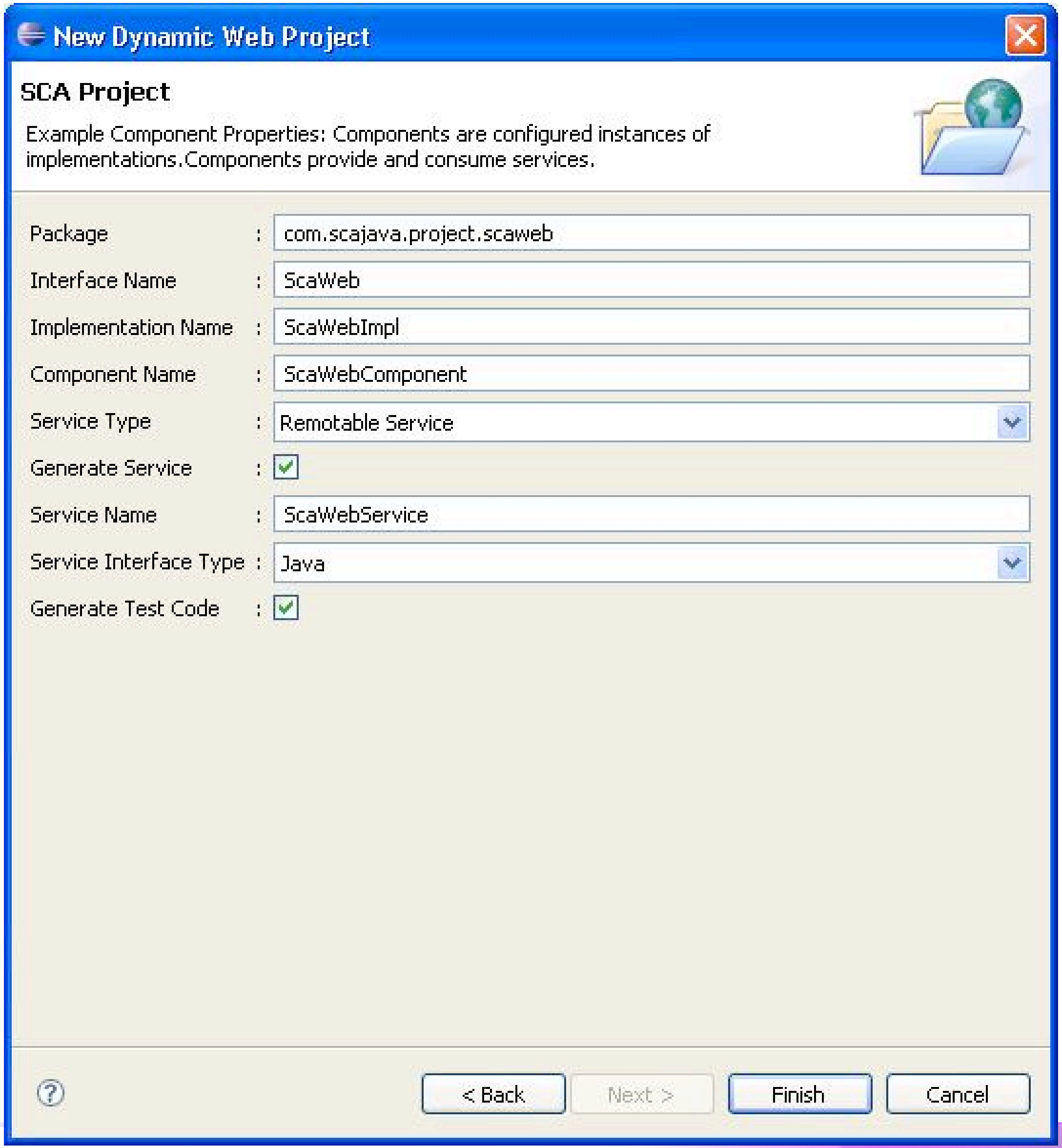
SCA is a model that aims to encompass a wide range of technologies for service components and for the access methods which are used to connect them.

Composite Name : MySCAWebProjectComposite

Generate Example Component : ☑

Generate Reference : ☐

SCA Web Project Wizard

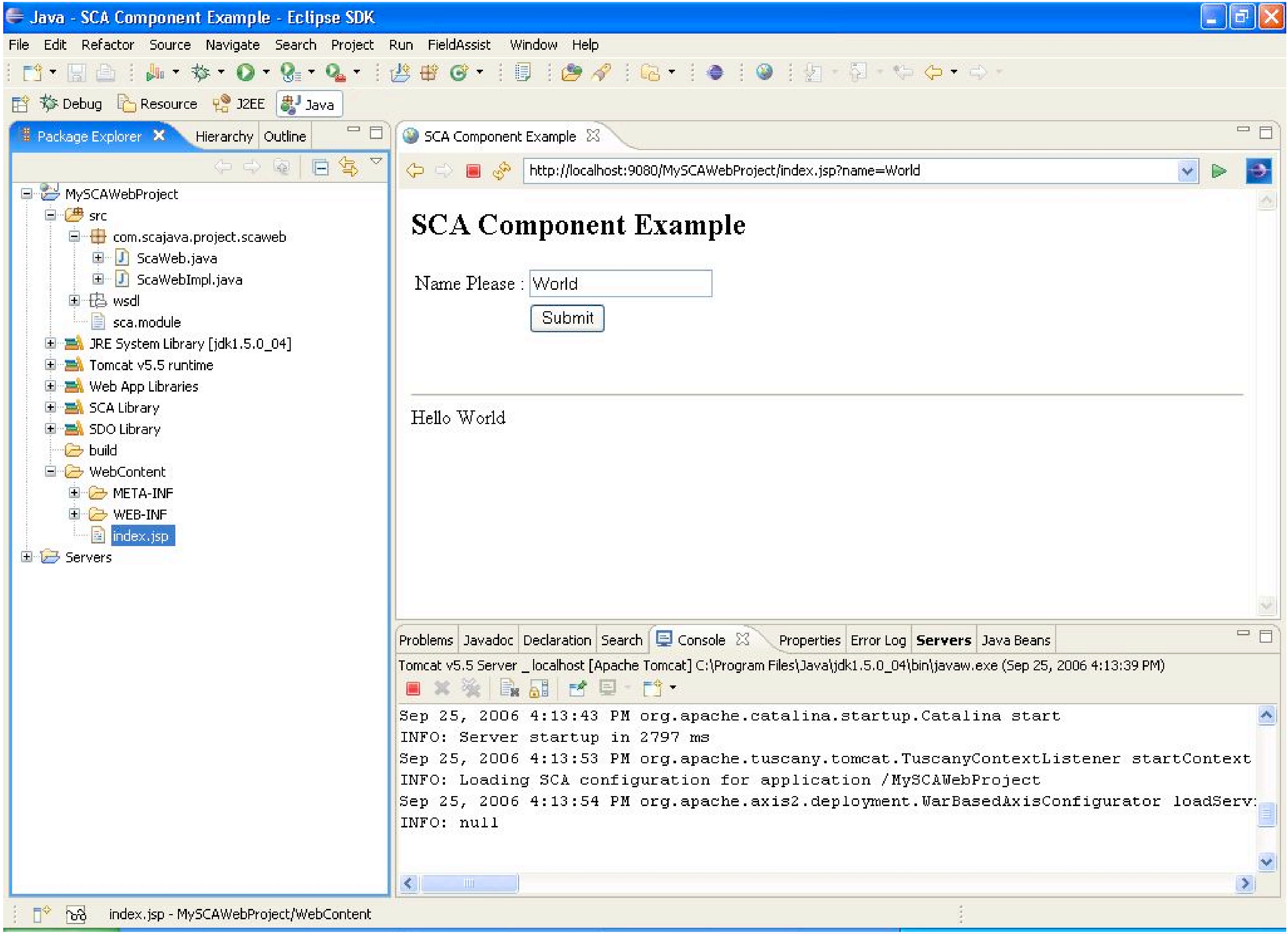


SCA Project

Example Component Properties: Components are configured instances of implementations.Components provide and consume services.

Package :	com.scajava.project.scaweb
Interface Name :	ScaWeb
Implementation Name :	ScaWebImpl
Component Name :	ScaWebComponent
Service Type :	Remotable Service
Generate Service :	☑
Service Name :	ScaWebService
Service Interface Type :	Java
Generate Test Code :	☑

SCA Web Project Wizard



http://localhost:9080/MySCAWebProject/index.jsp?name=World

SCA Component Example

Name Please : World

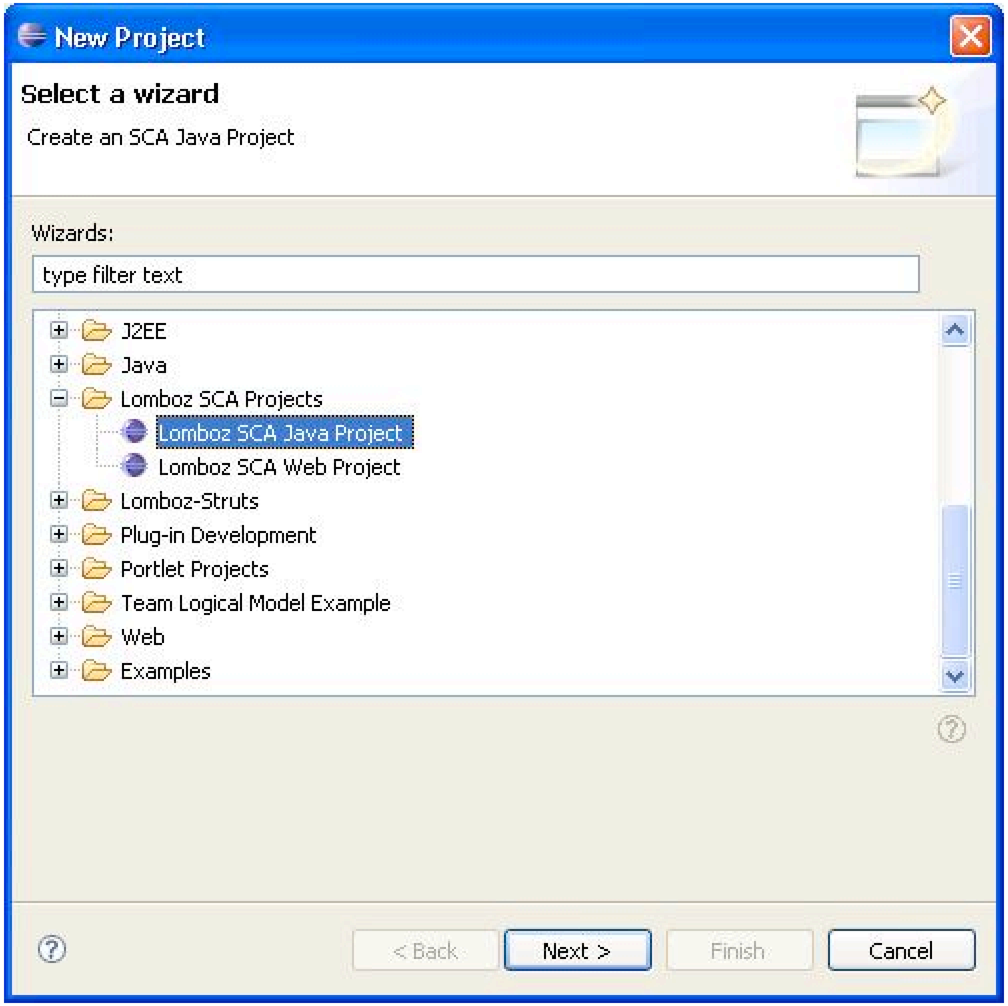
Submit

Hello World

Tomcat v5.5 Server _ localhost [Apache Tomcat] C:\Program Files\Java\jdk1.5.0_04\bin\javaw.exe (Sep 25, 2006 4:13:39 PM)

```
Sep 25, 2006 4:13:43 PM org.apache.catalina.startup.Catalina start
INFO: Server startup in 2797 ms
Sep 25, 2006 4:13:53 PM org.apache.tuscany.tomcat.TuscanyContextListener startContext
INFO: Loading SCA configuration for application /MySCAWebProject
Sep 25, 2006 4:13:54 PM org.apache.axis2.deployment.WarBasedAxisConfigurator loadServ:
INFO: null
```

SCA Java Project Wizard



New Project

Select a wizard

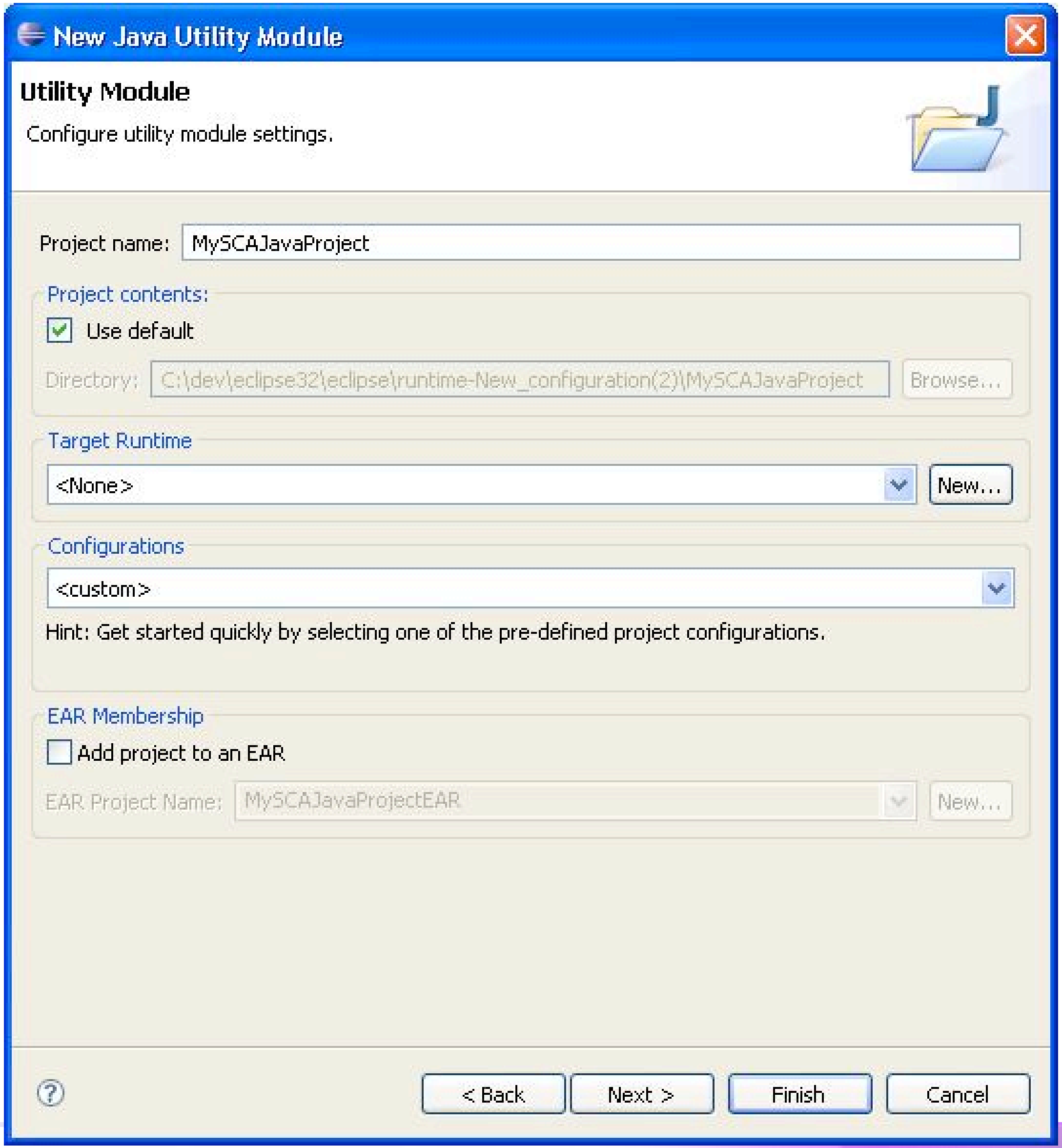
Create an SCA Java Project

Wizards:

type filter text

- J2EE
- Java
- Lomboz SCA Projects
  - Lomboz SCA Java Project
  - Lomboz SCA Web Project
- Lomboz-Struts
- Plug-in Development
- Portlet Projects
- Team Logical Model Example
- Web
- Examples

SCA Java Project Wizard



Utility Module

Configure utility module settings.

Project name: MySCAJavaProject

Project contents:

☑ Use default

Directory: C:\dev\eclipse32\eclipse\runtime-New_configuration(2)\MySCAJavaProject

Target Runtime

<None>

Configurations

<custom>

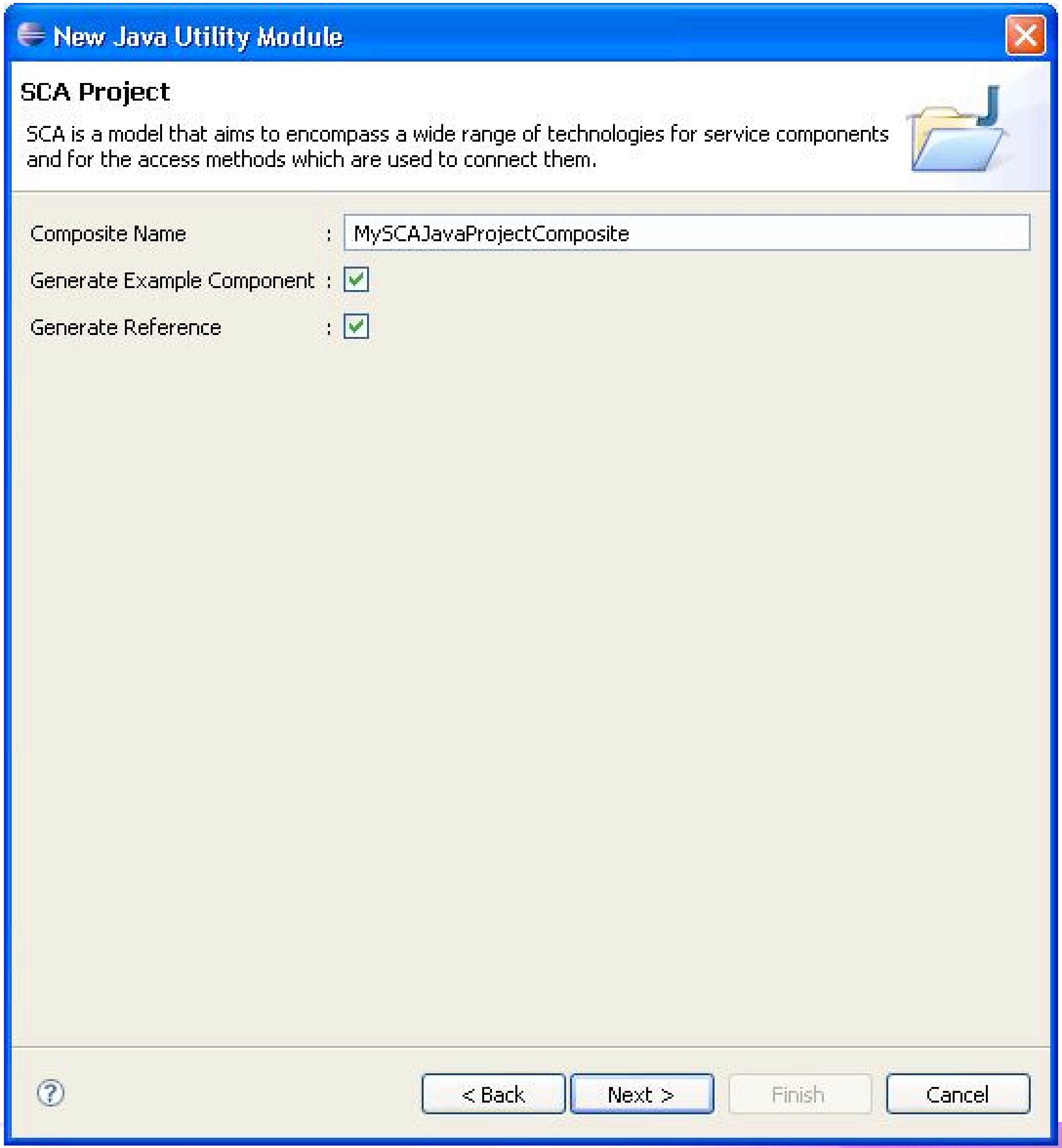
Hint: Get started quickly by selecting one of the pre-defined project configurations.

EAR Membership

☐ Add project to an EAR

EAR Project Name: MySCAJavaProjectEAR

SCA Java Project Wizard



New Java Utility Module

SCA Project

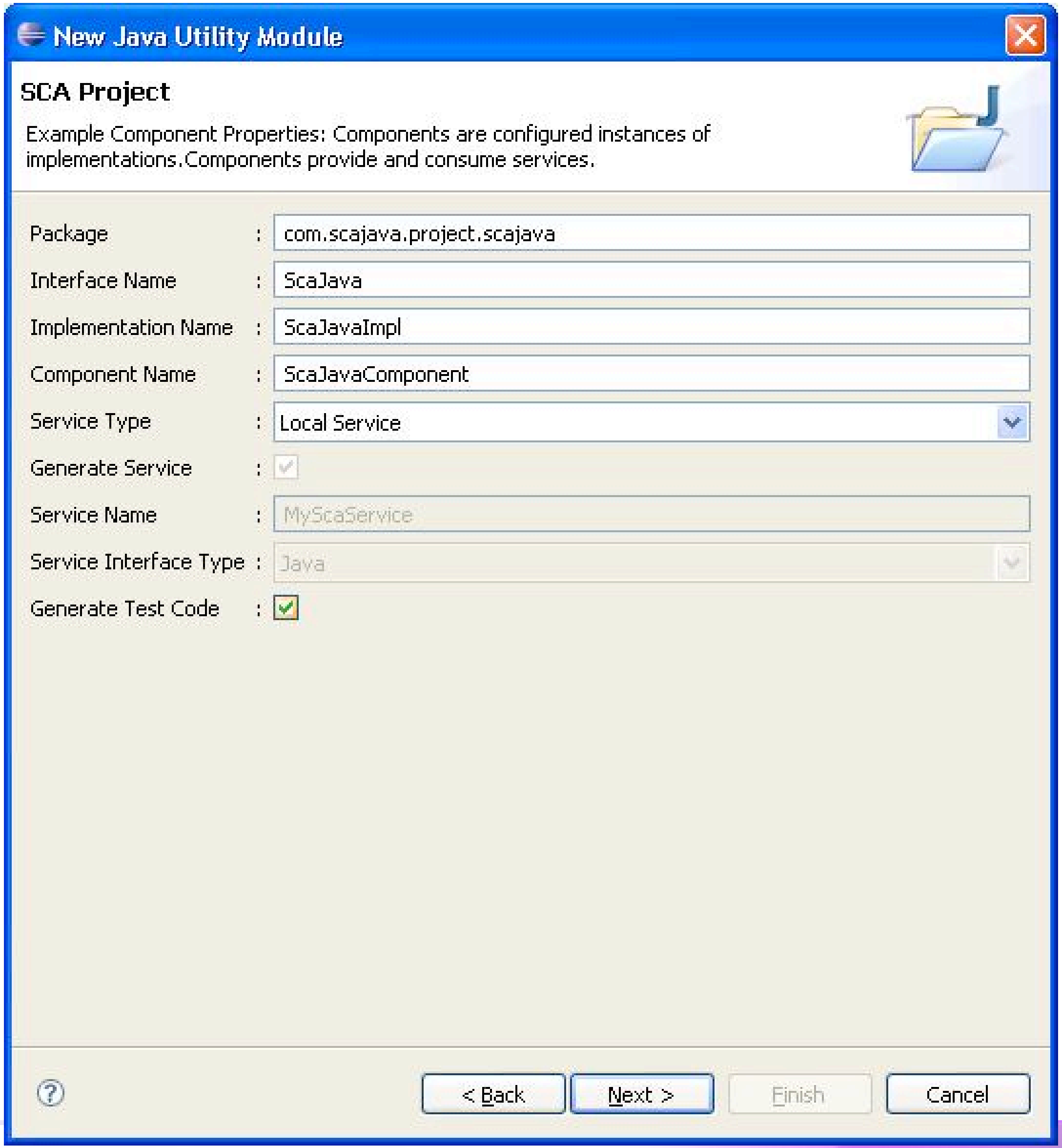
SCA is a model that aims to encompass a wide range of technologies for service components and for the access methods which are used to connect them.

Composite Name : MySCAJavaProjectComposite

Generate Example Component : ☑

Generate Reference : ☑

SCA Java Project Wizard



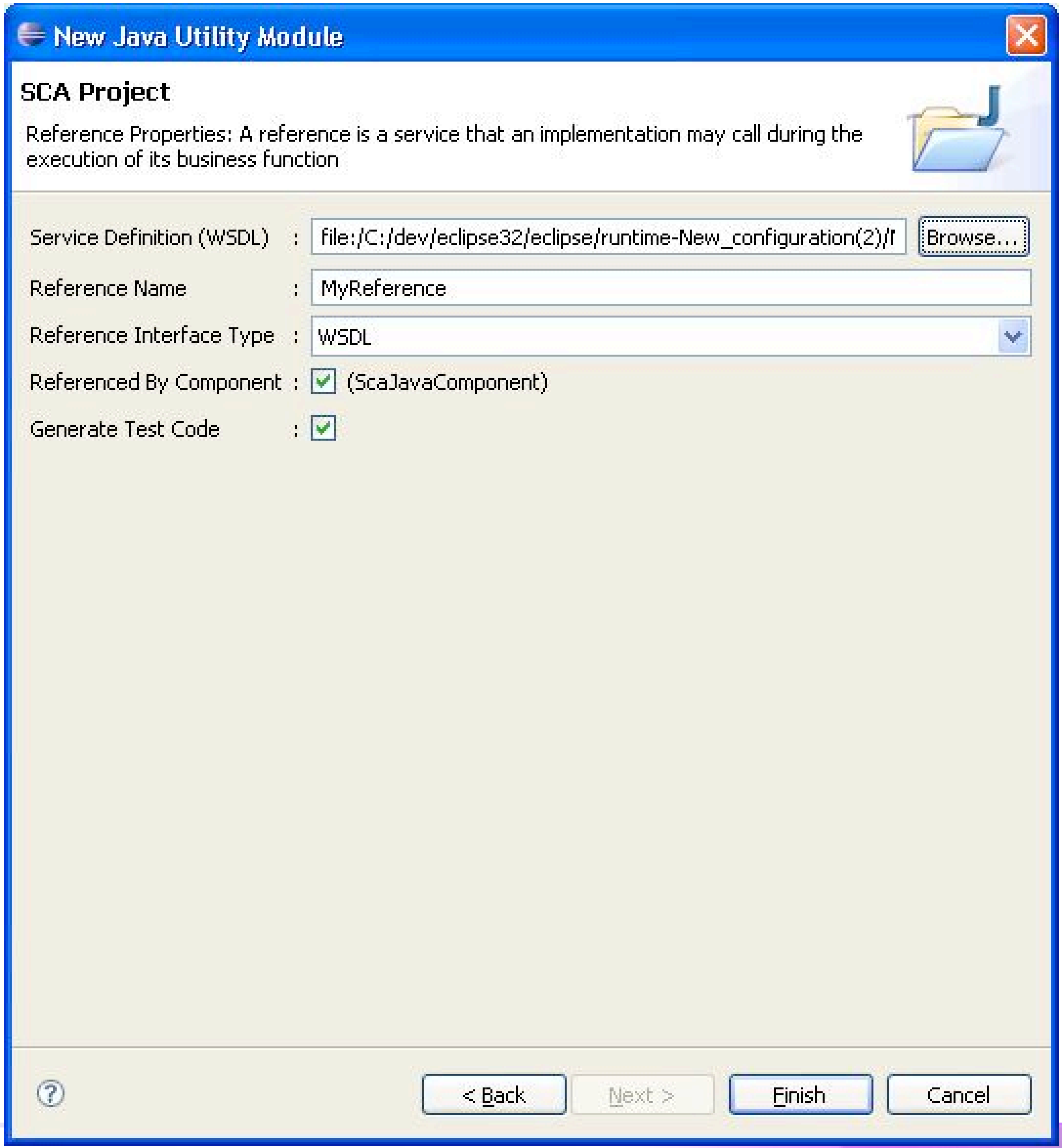
New Java Utility Module

SCA Project

Example Component Properties: Components are configured instances of implementations.Components provide and consume services.

Package	:	com.scajava.project.scajava
Interface Name	:	ScaJava
Implementation Name	:	ScaJavaImpl
Component Name	:	ScaJavaComponent
Service Type	:	Local Service
Generate Service	:	☑
Service Name	:	MyScaService
Service Interface Type	:	Java
Generate Test Code	:	☑

SCA Java Project Wizard



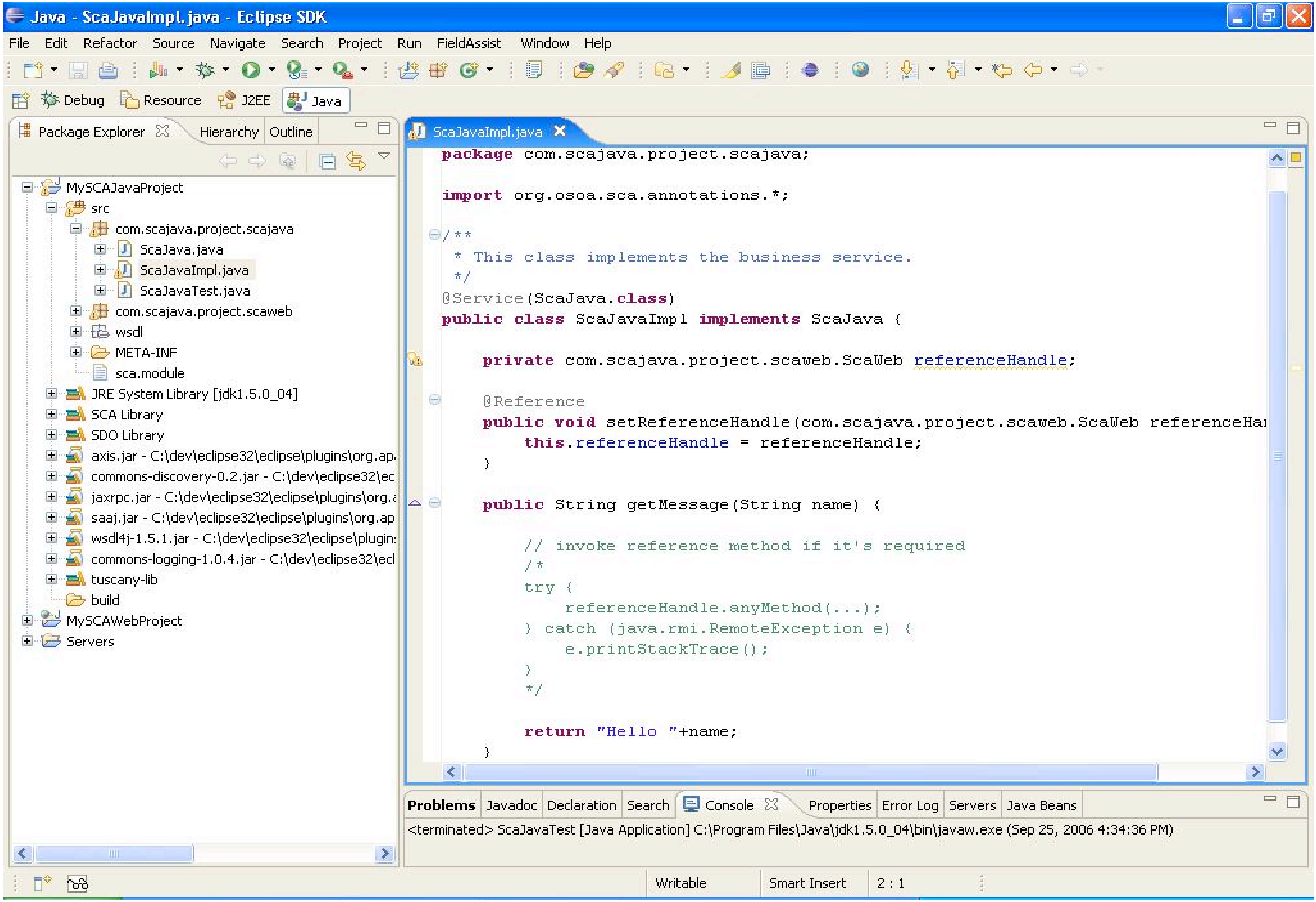
New Java Utility Module

SCA Project

Reference Properties: A reference is a service that an implementation may call during the execution of its business function

Service Definition (WSDL) :	file:/C:/dev/eclipse32/eclipse/runtime-New_configuration(2)/f
Reference Name :	MyReference
Reference Interface Type :	WSDL
Referenced By Component :	☑ (ScaJavaComponent)
Generate Test Code :	☑

SCA Java Project Wizard

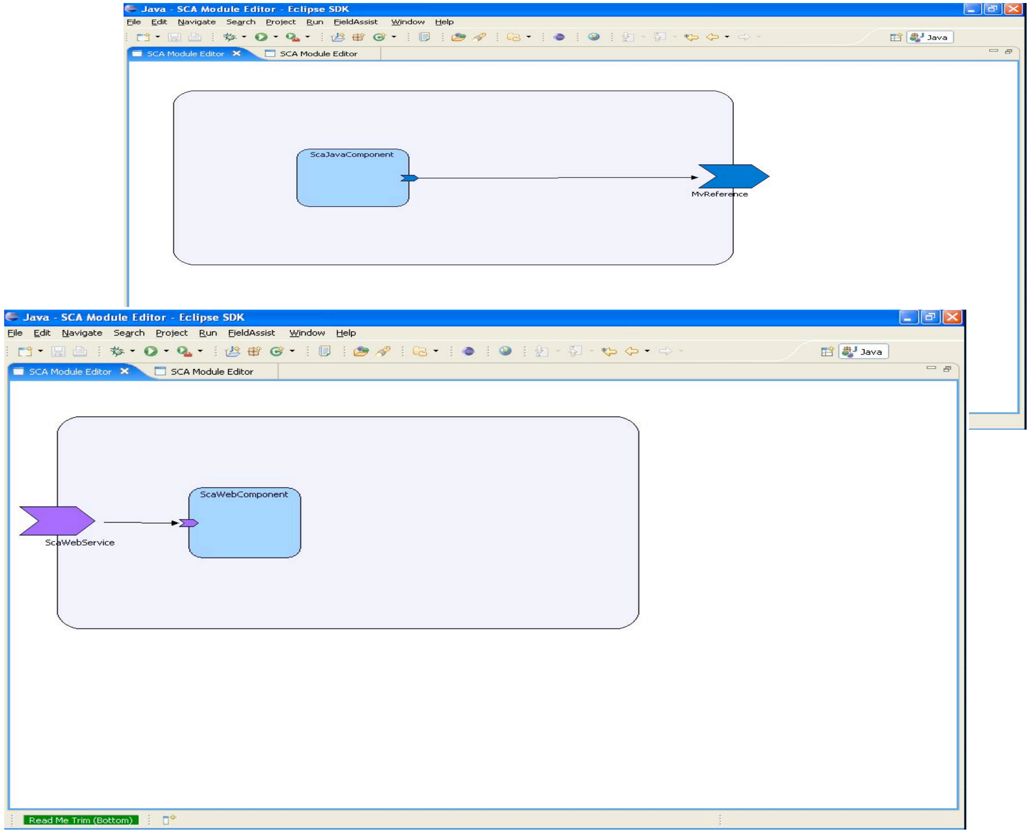

Java - ScaJavaImpl.java - Eclipse SDK
File
Edit
Refactor
Source
Navigate
Search
Project
Run
FieldAssist
Window
Help
Debug
Resource
J2EE
Java
Package Explorer
Hierarchy
Outline
MySCAJavaProject
src
com.scajava.project.scajava
ScaJava.java
ScaJavaImpl.java
ScaJavaTest.java
com.scajava.project.scaweb
wsdl
META-INF
sca.module
JRE System Library [jdk1.5.0_04]
SCA Library
SDO Library
axis.jar - C:\dev\eclipse32\eclipse\plugins\org.ap
commons-discovery-0.2.jar - C:\dev\eclipse32\ec
jaxrpc.jar - C:\dev\eclipse32\eclipse\plugins\org.
saaj.jar - C:\dev\eclipse32\eclipse\plugins\org.ap
wsdl4j-1.5.1.jar - C:\dev\eclipse32\eclipse\plugin
commons-logging-1.0.4.jar - C:\dev\eclipse32\ecl
tuscany-lib
build
MySCAWebProject
Servers
ScaJavaImpl.java
Problems
Javadoc
Declaration
Search
Console
Properties
Error Log
Servers
Java Beans
Writable
Smart Insert
2 : 1

```
package com.scajava.project.scajava;

import org.osoa.sca.annotations.*;

/**
 * This class implements the business service.
 */
@Service(ScaJava.class)
public class ScaJavaImpl implements ScaJava {

    private com.scajava.project.scaweb.ScaWeb referenceHandle;

    @Reference
    public void setReferenceHandle(com.scajava.project.scaweb.ScaWeb referenceHa
        this.referenceHandle = referenceHandle;
    }

    public String getMessage(String name) {

        // invoke reference method if it's required
        /*
        try {
            referenceHandle.anyMethod(...);
        } catch (java.rmi.RemoteException e) {
            e.printStackTrace();
        }
        */

        return "Hello "+name;
    }
```

```
<terminated> ScaJavaTest [Java Application] C:\Program Files\Java\jdk1.5.0_04\bin\javaw.exe (Sep 25, 2006 4:34:36 PM)
```

SCA Editor (experimental)

- SCA graphical editor for composites
- Uses the diagram elements found in the SCA Assembly specification


Java - SCA Module Editor - Eclipse SDK
File Edit Navigate Search Project Run FieldAssist Window Help
Java
SCA Module Editor
SCA Module Editor
ScaJavaComponent
MyReference
Java - SCA Module Editor - Eclipse SDK
File Edit Navigate Search Project Run FieldAssist Window Help
Java
SCA Module Editor
SCA Module Editor
ScaWebComponent
ScaWebService
Read Me Trim (Bottom)